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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,519

12/20/2005

Tetsuji Hirano

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,519	<b>Applicant(s)</b> HIRANO ET AL.	
	<b>Examiner</b> PETER F. GODENSCHWAGER	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/2005, 3/17/2006</u> .                                   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for the limitation "substantially no melting point", only a description of a mixture with "no melting point" (Pg. 8, ¶23 of the original specification).

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant the limitation "substantially no melting point", as it is not clear as to what temperatures one skilled in the art would consider a melting point would have to be to satisfy this limitation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 7-13 rejected under 35 U.S.C. 102(b) as being anticipated by Kreuer et al. (US Pat. No. 6,264,857).

Regarding Claims 1 and 2: Kreuer et al. teaches a mixture of a base (amphoteric material) such as an imidazole where the 4 or 5 position is substituted by a hydrocarbon group (where R<sup>1</sup> or R<sup>3</sup> of instant claim 1 is a hydrocarbon group and are thus different) with an acid (abstract, 3:58-4:20). Kreuer et al. further teaches that a solvent such as water or dimethylformamide (compound that may act as a base, giving two basic components in the mixture) is added to the mixture (4:31-35).

Regarding Claim 7: Kreuer et al. further teaches that the imidazole is substituted at the 4 position by a methyl group (4-methylimidazole) (4:1-20).

Regarding Claim 8: Kreuer et al. further teaches that the imidazole is substituted at the 2 position by an ethyl group (2-ethylimidazole) (4:1-20).

Regarding Claim 9: Kreuer et al. further teaches that the acid component comprises acids such as p-toluenesulfonic acid and methylsulfonic acid (acids structurally free from a fluorine atom) (2:53-67).

Regarding Claims 10 and 11: Kreuer et al. further teaches that the acid component comprises an inorganic acid such as phosphoric acid or sulphuric acid (3:1-2).

Regarding Claims 12 and 13: Kreuer et al. further teaches that the compositions are proton (an ion) conductors (abstract).

Claims 1 and 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren (US Pat. No. 3,356,645).

Regarding Claim 1: Warren teaches a salt of an imidazole (a mixture of a base (imidazole) and an acid) (2:36-58). Warren teaches that the imidazoles is substituted at the 4 or 5 position (giving imidazoles where  $R^1$ ,  $R^2$ , or  $R^3$  of instant claim 1 is a hydrocarbon group) (3:1-3), and further that mixtures of imidazoles are used (giving two basic components in the mixture) (3:10).

Regarding Claims 3 and 5: Warren further teaches that the imidazole salts are usually liquids or very low melting solids (2:29-32).

Regarding Claim 4: Warren further teaches that the imidazole and acid is mixed in a 1:1 ratio (3:25-27).

Regarding Claim 6: Warren further teaches that the imidazole is 2-ethyl-4-methylimidazole (3:3).

Claims 14-16, 19, 20 and 22-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kreuer et al. (US Pat. No. 6,264,857).

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Regarding Claims 14, 15, and 25: Kreuer et al. teaches a proton (ion) conductor that is a mixture of a base (amphoteric material), such as an imidazole, where the 2, 4 or 5 position is substituted by a hydrocarbon group (where  $R^1$ ,  $R^2$ , or  $R^3$  of instant claim 14 is a hydrocarbon group thus differentiating  $R^1$  and  $R^3$ ) with an acid (abstract, 3:58-4:20).

Regarding Claims 16 and 20: Kreuer et al. further teaches that the imidazole is substituted at the 4 position by a methyl group (4-methylimidazole) (4:1-20).

Regarding Claim 19: Kreuer et al. further teaches that the imidazole is substituted at the 4 position by a methyl group and leaving the 5 position ( $R^3$ ) as a hydrogen (4-methylimidazole) (4:1-20).

Regarding Claim 22: Kreuer et al. further teaches that the acid component comprises acids such as p-toluenesulfonic acid and methylsulfonic acid (acids structurally free from a fluorine atom) (2:53-67).

Regarding Claims 23 and 24: Kreuer et al. further teaches that the acid component comprises an inorganic acid such as sulfuric acid (3:1-2).

Claims 14, 17, 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren (US Pat. No. 3,356,645).

Warren teaches a salt of an imidazole (a mixture of a base (imidazole) and an acid) (2:36-58). Warren teaches that the imidazole is substituted at the 4 or 5 position (giving imidazoles where  $R^1$ ,  $R^2$ , or  $R^3$  of instant claim 1 is a hydrocarbon group) (3:1-3). Warren further teaches the imidazole is 2-ethyl-4-methylimidazole (where  $R^1$  is methyl,  $R^2$  is ethyl) (3:3).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached form PTO-892.

*Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harold Y Pyon/  
Supervisory Patent Examiner, Art Unit 1796

PFG  
March 20, 2008

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